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The azo acid browns, such as the Bismarck browns (Vesuvin, brun d' aniline). These do not stain cellulose or callose. (4) For protoplasm, lignin, and cutin: The acid browns of variable composition, often having no relation to Bismarck browns. These are salts of soda of which the coloring matter is the base. They are soluble in water. They stain protoplasm brown, and certain stain cellulose rose color, but feebly. They color lignin and cutin deeply in an acid bath. They do not stain pectin or callose compounds. They also mix with the soluble blues without precipitation and consequently are very suitable for the preparation of double stains, by means of which callose can be distinguished very readily in the midst of tissues rich in nitrogenous matters—ERWIN F. SMITH.

PECK, CHARLES H.—*Annual Report of the State Botanist of the State of New York.* Forty-fourth Rept. N. Y. State Mus. Nat. History: Albany, 1891, pp. 75, pl. 4.

The above was distributed to botanists during December, 1891, and is the most extensive contribution to systematic mycology issued during the year in this country. Prof. Peck continues his observations on fungi and gives descriptions of many new species, some of which are illustrated. In speaking of the liability of plants to the attacks of fungi, he says that certain species of spruce trees in a starved and unthrifty condition were attacked by *Peridermium decolorans*, while those in a healthy condition were exempt. The New York species of *Tricholoma* are monographed in a manner similar to genera in previous reports, forty-seven species being described. There is also given a notice of a manuscript volume by Mary E. Banning, which contains descriptions of some new species. The figures are colored by hand, and all the species were collected in Maryland. They are mostly Hymenomycetes and Gastromycetes. Fourteen new species are described.

The following is the contents of the report: (A) Plants added to the herbarium, including many species of fungi (pp. 9–11). (B) Contributors and their contributions (pp. 11–14). (C) Species of plants not before reported (pp. 15–30), with the following new species: *Armillaria viscidipes*, *Tricholoma grande*, *Clitocybe fuscipes*, *Collybia expallens*, *Omphalia corticola*, *Pleurotus pubescens*, *P. campanulatus*, *Flammula squallida*, *Crepidotus distans*, *Cortinarius albidus*, *Dædalea sulphurella*, *D. extensa*, *Hydnus arachnoideum*, *Odontea tenuis*, *Mucronella minutissima*, *Thelephora odorifera*, *Cyphella arachnoidea*, *Phyllosticta ludwigiae*, *Dothiorella celtidis*, *Diplodia liriodendri*, *D. multicarpa*, *Septoria pteridis*, *Septomyxa carpini*, *Aspergillus avarius* (found in the visceral cavity of a canary and supposed to have caused its death), *Sporotrichum Lecanii*, *Diplosporium breve*, *Ramularia destruens*, *R. junci*, *R. graminicola*, *Cercospora veratri*, *Bispora effusa*, *Septonema episphaericum*, *Caryospora minor*, *Metaspheeria nuda*, *Pseudopeziza pyri*, *Saccharomyces betulae*, Pk. & Pat. (D) Remarks and observations (pp. 30–38) including

remarks on fungi and descriptions of new varieties and one new species, as follows: *Pleurotus atrocaeruleus*, var. *griseus*, *Coniophora puteana*, var. *tuberculosa* and *rimosa*, *Vibrissea truncorum*, var. *alipes*, *Agaricus campestris*, var. *griseus*, *Armillaria mellea*, var. *radicola*, and *Tricholoma maculatescens*. On page 36, under *Fusicladium destruens* it is noted that the presence of this species and others is a consequence, and not the cause of the death of oat plants. (E) (pp. 38-64). New York species of *Tricholoma*, giving keys, and descriptive notes. (F) (pp. 64-75.) Fungi of Maryland, with descriptions of new species by Mary E. Banning as follows: *Amanita pellucidula*, *Tricholoma rancidulum*, *T. edurum*; *T. subdurum*, *T. magnum*, *Clitocybe aquatica*, *Collybia siticulosus*, *C. subrigua*, *Pholita rubecula*, *P. mollicula*, *Hypholoma subaeratum*, *Coprinus virginicus*, *Russula viridipes*, *Boletus ignoratus* and *Hydnus caespitosus*.

The plates accompanying the report are about up to the usual standard, but are not what might be expected from a rich State like New York. They would, too, have been rendered much more convenient for use had there been some indication given as to the page where the figured species is described. As there is no index one must look through the whole of the text to find the description of any desired figure.—

JOSEPH F. JAMES.

SOLMS-LAUBACH, H. GRAF ZU. *Fossil Botany, being an introduction to Palaeophytology from the standpoint of the botanist.* English translation by Garnsey. Revised by Balfour. Oxford: Clarendon Press, 1891, pp. 401.

This book concerns itself only with the remains of ancient plants, *i.e.*, with little or nothing more recent than genera dating from the Carboniferous era, and not at all with Dicotelydons. A part of one page only is devoted to fungi, and the statements are so concise and comprehensive that they may be quoted in full:

"Schimper gives us a long list of fungi and lichens which have been described by older writers. Where these are not merely spots on leaves, but actual Pyrenomycetes, Discomyces, and Basidiomycetes growing on leaves or pieces of fossil wood, they still have no value except in showing what was probable without them, namely, that fungi formed a part of the ancient floras. When Polyporei and Lenzites occur, as in the brown coals, it is not surprising that we should also find silicified woods which have been half destroyed by their mycelia. Such mycelia from the wood of the Tertiary have been described by Unger under the name of Nyctomyces. That there were fungi in the older formations also is proved by the fragments of thallus with local bladder-like swellings which are occasionally found in the tissue of stems of Lepidodendron, and which have been figured by Williamson under the name of Peronosporites antiquarius, Worth. Smith. Similar objects have been mentioned by other writers also—for example, by Renault and Bertrand under the name of Grilletia sphaerospermii—from seeds of the period of the coal measures found in the siliceous fragments of Grand Croix. A form described by Ludwig from coal seams in the Urals as Gasteromyces farinosus may be nothing more than an aggregate of spores and spore tetrads of some archegoniate plant. That bacteria destroyed the substance of dead plants during the period of the Coal measures, as they do at the present day, is rendered extremely probable by the researches of Van Tieghem, who has